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SUGAR BEETS IN IOWA, 1891.

Not Including Those Grown on the Station Grounds.

G. E. PATRICK, E. N. EATON, D. B. BISBEE.

The proposition made in Bulletin No. 12 for an extensive investigation of the possibilities of sugar beet culture in this state, to be made jointly by the farmers of the state and the chemical section of the station, has resulted in the work whose numerical data are reported in this article.

The results here recorded are almost wholly those obtained in the laboratory. The information furnished by the growers regarding the character of the soil in which the beets were grown and its treatment before planting and during growth of the crop, must be brought into condensed form before it can be of much value to the public, (even if it then be), and as it will take considerable time to do this, that portion of our report is reserved for a future bulletin.

EXPLANATORY NOTES ON THE SAMPLES, THE MODE OF TESTING, AND THE TABLE OF RESULTS.

I. THE SAMPLES.

Of the 502 samples—consisting usually of from 2 to 12 beets each—whose analyses are recorded in the following table, 339 were sent in either by business men's associations or by informally associated business men of four cities.

The Ft. Dodge Business Men's Association procured beet seed last spring from the U. S. Dept. of Agr. and distributed it among the farmers of Webster county, offering prizes for the three best lots of beets grown therefrom. The growers were instructed to select twelve beets which would fairly

represent the entire crop grown upon each plat, and deliver the same to Granger & Mitchell, Ft. Dodge, on or before Oct. 25th. This firm forwarded the samples, intact, to the station; there were 24 of them—numbered in the table from 37 to 60 inclusive.

The Commercial Exchange of Des Moines, G. F. Selleck, Secretary, obtained seed in part from the U. S. Dept. of Agr., and in part from foreign seed growers direct, distributed the same in Polk and adjoining counties, and offered prizes on the quality of beets grown. As samples, the growers were instructed to send six beets fairly representing each plat or trial to the secretary, who forwarded the same, intact, to the station. Of these samples there were 95—bearing numbers in the table from 144 to 238 inclusive.

The Davenport Business Men's Association sent only seven samples—numbered in the table from 245 to 251 inclusive. Six of the seven contained only two beets each. The seed was obtained from Oxnard Bros., Grand Island, Neb.

W. H. Hoopes & Sons, together with Mr. Fred Daut (and perhaps other citizens), of Muscatine, imported beet seed from Germany and distributed it among a large number of farmers in their county. The growers were instructed to bring in as samples (to W. H. Hoopes & Sons) beets weighing from $1\frac{1}{2}$ to $2\frac{1}{2}$ pounds. Each grower brought in twelve, of which six were selected and sent to the station for analysis. In all, there were 213 of these samples. They were sent in three distinct lots, harvested at different dates, as follows:

<i>Lots.</i>	<i>Numbered in the table.</i>	<i>Dates of harvesting, (about).</i>
I.....	252 to 305 inclusive.....	October 5th
II.....	306 to 367 “	October 15th
III.....	368 to 464 “	October 30th

As the dates of planting would average about the same for the three lots, the results of analysis—shown in concise form in the *means* for the respective lots, in the table—forcibly illustrate the well known effect of *thorough ripening* upon the quality of the beet.

One hundred and sixty-three samples were sent in by private (unassociated) individuals, who were in most cases the growers of the beets.

2. PREPARATION OF SAMPLES, AND TESTING.

(a.) *Trimming the Beets*—The Beets were of course received by us with their tops cut off *above* the crown. In this shape the entire sample was weighed. Then the beets were trimmed as for factory purposes—in many cases much more than is commonly needed for factory purposes—by cutting off the crowns and shoulders as far down as they had been exposed above ground, and the *trimmed* sample was then weighed. The loss by trimming, which ranged from 10 to 40 per cent (the mean being probably about 25), was used in calculating the yield of trimmed beets per acre, (see 4, below).

(b.) *Sampling, obtaining the juice, "polarizing."*—Each beet of the sample, after trimming, was quartered longitudinally and one of the quarters from each taken, to form a moderate sized sample for working. This entire sub-sample was put through an "Enterprise" meat chopper and the pulp so obtained thoroughly mixed, enclosed in stout linen and pressed in a small cider press until no more juice could be obtained. The juice, after standing in cylinders for 20 to 30 minutes to settle, was tested in the usual manner for "total solids"—by sp. gr. spindle—and for sugar by the polariscope. [The accuracy of both instruments was established by delicate tests.]

3. CALCULATION OF SUGAR IN THE BEETS.

The polarization figures for sugar in the juice were multiplied by .95 and the results recorded in the table as sugar in the beets. The factor .95 may possibly be a *trifle* too high (last year's work, Bulletin No. 12, indicates that possibility), but since this is the factor in common use the world over and since a more accurate one has not been fixed upon, its use is continued here.

4. ESTIMATION OF YIELD.

The yield of trimmed beets (see 2, above) in tons per acre was in each case calculated from data furnished by the grower (weight grown on a measured plat or in 50 feet of an average row) and from the percentage of loss which the sample actually suffered in trimming. Whenever the estimate thus obtained exceeded thirty tons of trimmed beets per acre the probability of its being an over-estimate seemed so great that it was recorded in the table as 30 .

5 TERMS USED IN THE TABLE.

The term Brix signifies that the total solids in the juice were determined by means of a hydrometer—a sp. gr. or a Brix spindle—and not by drying the juice. [Readings on the sp. gr. spindle were converted into degrees Brix at $17\frac{1}{2}^{\circ}$ C.]

The term Coefficient of Purity means the percentage of sugar in the total solids of the juice.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

Results arranged by Counties, commencing with the northernmost tier and proceeding by tiers southward.

Sample No.	Number of Beets in sample.	Weight of Beets after trimming.		Estimated yield of trimmed Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
		Largest and smallest. Ounces.	Mean. Ounces.			Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.			
1	6	21—8	14	....	Klein Wanzlebener	May	10 Oct. 31	12.74	18.16	13.41	73.85	R. R. Witcox..	Milford	Dickinson.
2	5	19—7	11½	....	Vilmorin.....	"	10 " 31	13.04	18.39	13.73	74.67	"	"	"
Mean.	...	...	...	...	...	...	...	12.89	...	...	74.26	...	...	...
3	12	31—22	25	...	Vilmorin.....	May	20 Nov. 4	13.69	19.12	14.41	75.39	S. G. Tyrrell..	Riceville	Mitchell.
4	10	31—17	21½	11	Klein Wanzlebener	"	15 Oct. 15	10.97	15.42	11.55	74.89	A. S. Thornburg	Orchard	"
5	6	46—2	14	11	.....	"	18 " 19	11.97	17.48	12.60	72.09	John Hartogh..	New Haven....	"
6	6	17—14	15½	11	.....	"	18 " 19	11.76	17.48	12.38	70.83	"	"	"
Mean.	...	...	...	...	...	...	...	12.10	...	...	73.30	...	...	...
7	6	29—17	22	13	French	May	12 Oct. 10	14.72	20.57	15.49	75.34	Chas. Barnard.	Waukon	Allamakee.
8	4	64—46	54	13	German	"	12 " 10	11.27	16.97	11.87	69.95	"	"	"
9	4	47—24	37	20	French	"	13 " 8	13.63	18.33	14.34	78.25	"	"	"
10	6	48—19	31	24	German	"	13 " 8	14.94	19.46	15.72	80.81	"	"	"
11	7	50—17	33	30+	French	"	1 " 8	11.20	16.05	11.79	73.45	"	"	"
12	5	46—12	25½	30+	German	"	1 " 8	12.84	18.10	13.52	74.70	"	"	"
13	7	30—17	23	27	"Improved".....	"	13 " 20	11.28	17.19	11.87	69.05	"	"	"

14	6 84—25 49½	30	Lane's Improved..	May 15	Oct. 8	10.16	14.89	10.69	71.78	Chas. Barnard.	Waukon	Allamakee.
15	6 49—16 32	30+	French Yellow....	" 11	" 11	9.66	13.97	10.17	72.78	"	"	"
16	6 36—22 28½	30—	Vilmorin	" 12	" 11	11.64	16.51	12.25	74.20	"	"	"
Mean.	.....	.....	.....	.....	.....	12.13	.....	.....	74.03	.....	.....	.....
17	13 20—8 13	.....	.....	May 28	.....	12.36	17.46	13.01	74.52	L. Christopher.	Graettinger ...	Palo Alto.
18	11 30—8 16½	.....	French	" 20	Oct. 27	13.56	19.49	14.28	73.29	Peter O'Byrne.	Lawler	Chickasaw.
19	13 48—8 19	.....	German	" 20	" 27	13.46	19.49	14.17	72.72	"	"	"
20	11 34—5 15	17	Vilmorin	" 6	Oct. 23	12.84	18.81	13.51	71.84	N. E. Gary....	Bradford	"
21	11 38—6 12½	15	"	" 9	" 28	12.99	18.14	13.68	75.38	"	"	"
Mean.	.....	.....	.....	.....	.....	13.21	.....	.....	73.31	.....	.....	.....
22	4 63—35 49	20	German	May 6	Oct. 13	10.47	15.19	11.02	72.52	J. Wernli	LeMars	Plymouth.
23	4 45—38 40	23	French	" 6	" 13	10.07	14.95	10.60	70.69	"	"	"
Mean.	.....	.....	.....	.....	.....	10.27	.....	.....	71.71	.....	.....	.....
24	6 47—30 38	16	Vilmorin	May 20	Oct. 17	10.44	15.02	11.00	73.16	S. C. Whittlesey	Cherokee ...	Cherokee.
25	6 32—17 22½	.....	.....	.....	.....	10.34	15.62	10.88	69.65	E. F. Iseminger	Marathon	Buena Vista.
26	6 55—27 41	.....	.....	.....	.....	8.89	13.55	9.36	69.10	J. O. Overholt.	Havelock	Pocahontas.
27	12 15—7 10	13	French	May 13	Oct. 15	13.43	17.19	14.13	82.16	W. C. Norton .	Clarion	Wright.
28	12 12—7 10	18	German	" 13	" 15	13.00	17.03	13.68	80.36	"	"	"
Mean.	.....	.....	.....	.....	.....	13.22	.....	.....	81.26	.....	.....	.....
29	8 36—18 27½	.....	.....	May 24	Nov. 10	13.74	19.12	14.46	75.65	J. W. Bapp...	Hawkeye	Fayette.
30	6 34—15 26	20	French White....	" 20	Oct. 13	11.15	15.94	11.73	73.59	P. H. Winegar	Westgate	"
Mean.	.....	.....	.....	.....	.....	12.45	.....	.....	74.62	.....	.....	.....

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

Sample No.	Number of Beets in sample		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS RE-PORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polariza-tion). Per cent.				Purity Coefficient.
31	641—2133½	27			Klein Wanzlebener	April 12	Oct. 12	11.18	16.65	11.77	70.69	J. W. X. Smith	Edgewood	Clayton.
32	654—2339	30+			"	June 1	" 12	12.42	18.00	13.07	72.62	"	"	"
Mean.								11.80			71.66			
33	651—2439	14				May 1	Oct. 4	9.50	15.28	10.00	65.42	Wm. C. Ross..	Ida Grove....	Ida.
34	680—4760	16				" 15	Nov. 7	9.12	14.84	9.59	64.45	H. F. Meyer..	Odebolt	Sac.
35	642—1125	16				" 15	" 7	10.23	15.53	10.76	69.28	"	"	"
36	630—1925	16				" 15	" 7	10.47	15.53	11.02	70.95	"	"	"
Mean.								9.94			68.23			
37	10.....45				German	May 1	Oct. 16	9.97	15.79	10.50	66.50	J. Herrington.	Ft. Dodge.....	Webster.
38	1242—2534½	30+			German & French	" 1	" 12	12.50	17.24	13.15	76.30	W. C. Goodrich	Lehigh	"
39	1230—918½				"	April 20	" 15	8.85	14.20	9.31	65.55	G. L. Henry..	Ft. Dodge....	"
40	1244—1831½	29			German	May 15	" 12	10.90	14.43	11.45	76.69	S. P. Hancock	"	"
41	1242—1832				"	" 10	" 17	8.36	12.76	8.80	68.93	Sam Fallow...	"	"
42	1231—1121	20			German & French	" 10	" 22	11.57	17.87	12.18	68.15	T. W. Powers.	"	"
43	1233—1826	19			French.....	" 6	" 21	11.40	16.76	12.00	71.60	Wm. Kolb ...	"	"
44	1244—1022				White.....	April 10	" 20	13.65	15.76	14.37	79.72	Robt. Flattery.	"	"

45	834—18	24½	30+	German & French.	April 15	Oct. 10	11.93	17.49	12.55	71.77	A. Chantland..	Badger	Webster.
46	12 74—19	36½	20	German	May 15	" 22	9.39	14.72	9.87	67.03	S Watland, lot 1	"	"
47	12 72—16	45	25	French	" 15	" 22	9.00	13.85	9.47	68.41	" lot 2	"	"
48	12 14—6	11	20	German & French.	" 20	" 14	9.82	14.83	10.33	69.63	J. T. Brown..	Barnum.....	"
49	12 13—3	9		"	"	"	9.91	14.83	10.43	70.32	"	"	"
50	12 60—19	33	27	German	May 1	Oct. 9	10.43	15.46	10.97	70.97	Ira Rickard...	Callender	"
51	12 27—7	13	18	"	" 20	" 23	13.87	17.36	14.60	84.14	R. Hoff	"	"
52	12 16—7	9½	15	French	"	"	13.70	16.91	14.42	85.30	"	"	"
53	12 33—10	22	10	German	May 10	Oct. 13	10.29	15.21	10.83	71.19	Jno. Bakker..	Lehigh	"
54	12 14—4	9		"	" 15	" 12	9.19	14.79	9.67	65.36	J. W. Bennett.	Kalo	"
55	12 43—26	33½		"	" 1	" 21	11.98	17.25	12.61	73.12	W. J. Hale....	"	"
56	12 37—18	28½	23	"	June 13	Nov. 4	11.28	16.80	11.87	70.66	Clark Fuller..	"	"
57	12 32—12	20	14	French	May 1	Oct. 21	12.12	17.41	12.75	73.24	Wm. Pollock..	Clare	"
58	12 20—8	13½	25	German	April 20	" 23	10.95	16.07	11.52	71.67	D. T. Trusty..	Ft. Dodge....	"
59	12 26—8	16½	20	"	" 20	" 23	11.35	16.76	11.95	72.11	"	"	"
60	12 41—17	30		"	"	"	12.47	17.48	13.12	75.06	S. Ruffe.....	Burnside	"
Mean.							11.04			72.23			
61	6 74—14	37½					11.33	16.85	11.93	70.80	W. G. Gilman.	Jewell.....	Hamilton.
62	6 84—32	53½	30+		May 15	Nov. 4	11.28	16.15	11.87	73.50	T. F. Baldus..	"	"
Mean.							11.31			72.15			
63	10	45	19		May 1	Oct. 24	11.77	17.09	12.39	72.50	G. A. Ivins...	Iowa Falls...	Hardin.
63½	6 55—11	30					9.36	15.85	9.85	62.12	A. S. Desmarais	Grundy Center	Grundy.
64	9 15—7	11	8	German	June 1		11.72	17.03	12.33	72.41	W. H. Steimel.	Eagle Center..	Black Hawk.
65	12	7½	6	French	" 1		12.93	17.71	13.61	76.87	"	"	"
66	1	20		Klein Wanzlebener	May 15	Oct. 15	12.37	17.03	13.02	76.47	Bozarth Bros..	Cedar Falls...	"
67	1	18		"	" 15	" 15	10.34	15.42	10.88	70.55	"	"	"
68	10 33—9	22		"	" 15	" 15	12.17	17.71	12.81	72.34	"	"	"
69	4 42—32	36		"	" 28		6.66	12.05	7.01	58.19	Phil Eiler....	"	"
Mean.							11.03			71.14			

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.	Planting.			Harvesting.	Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.				
70	442—3740	40	8		Klein Wanzl.	May 15	Oct. 10	10.90	15.13	11.47	75.80	W. A. Rogers...	Independence.	Buchanan.
71	1127—1018½	18½	....		German	May 26	Oct. 17?	11.79	17.21	12.41	72.11	{ M. Burds and N. Freimann }	Peosta	Dubuque.
72	15.....35		....		German	"	"	11.40	16.76	12.00	71.60	{ J. S. Smead, M. Biehl, E. Pinch, Sr. }	"	"
73	644—1928½	28½	....			"	"	11.26	16.57	11.85	71.77	Gottlieb Setzik..	"	"
74	1323—716	16	....		German & French.	"	"	13.33	19.29	14.02	72.69	J. M. Allison....	"	"
75	1028—1118½	18½	....		German	"	"	16.79	23.32	17.67	75.77*	"	"
76	219—1215½	15½	....			"	"	16.04	21.35	16.88	79.05	{ C. H. Brant. } N. Freimann }	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	13.43	.....	.....	73.83	.....	.....	.....
77	824—1719	20			German	May 7	Oct. 18	11.82	17.58	12.44	70.78	Jas. W. Davis...	Turin	Monona.
78	833—1927	27			French	" 7	" 18	10.26	15.76	10.79	66.91	"	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.04	.....	.....	68.85	.....	.....	.....
79	1.....23		....		Vilmorin's Imp...	†.....	.....	12.90	17.36	13.58	78.24	M. Simon.....	Carroll.....	Carroll.
80	1.....9		....		"	.....	.....	13.42	18.00†	14.12	78.46	"	"	"

81	1	.....	29	.....	Vilmorin's Imp...	.....	.....	11.58	15.59	12.19	78.19	M. Simon.....	Carroll.....	Carroll.
82	1	.....	11	.....	"	.....	.....	10.59	15.00†	11.15	74.32	"	"	"
83	1	.....	30	.....	"	.....	.....	11.20	16.05	11.79	73.46	"	"	"
84	2	27—24	25½	.....	"	.....	.....	11.51	15.82	12.11	76.57	"	"	"
85	2	23—12	17½	.....	"	.....	.....	11.23	15.83	11.82	74.71	"	"	"
86	28	.....	14	.....	"	.....	.....	11.49	16.00†	12.09	75.57	"	"	"
87	6	25—13	16	21	"	June 11	Oct. 16	13.87	18.78	14.60	77.77	"	"	"
88	6	20—10	14	.....	"	"	" 14	13.06	18.33	13.7	75.03	"	"	"
89	6	19—13	15½	15	"	June 8	" 22	13.10	17.65	13.79	78.15	M. Kimble.....	"	"
90	6	26—16	23	.....	"	" 10	" 23	12.47	18.02	13.13	72.87	M. Simon.....	"	"
90½	6	10—4	7	.....	"	" 18	" 23	8.57	16.28	9.02	55.43	"	"	"
91	6	30—16	21½	20	"	" 15	" 24	12.60	17.56	13.26	75.53	"	"	"
92	6	18—11	13½	15	"	.....	.....	14.37	19.82	15.12	76.31	"	"	"
93	6	35—17	26½	22	"	June 20	Oct. 22	12.34	17.43	12.99	74.57	"	"	"
94	6	15—8	10	17	"	" 10	" 20	11.15	16.65	11.74	70.51	"	"	"
95	6	15—9	12	.....	"	May 12	" 16	11.87	17.42	12.49	72.85	"	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	12.08	.....	.....	74.36	.....	.....	.....
96	6	26—12	19	.....	Klein Wanzl.....	April 30	Oct. 16	10.94	15.71	11.51	73.26	A. G. Wise.....	Jefferson.....	Greene.
97	4	46—16	28	.....	"	" 30	" 16	10.92	15.71	11.49	73.13	"	"	"
98	5	56—37	47	.....	"	" 30	" 16	9.28	14.56	9.77	67.07	"	"	"
99	3	42—33	37	.....	Vilmorin.....	" 30	" 16	9.85	14.56	10.37	71.21	"	"	"
100	3	55—38	45	.....	Wahanka.....	April 30	Oct. 16	8.51	12.22	8.96	73.36	"	"	"
101	3	69—42	54½	.....	"	" 30	" 16	7.09	11.28	7.46	66.16	"	"	"
102	4	33—15	24½	.....	Vilmorin.....	" 30	" 16	10.69	14.56	11.25	77.26	"	"	"
103	6	37—21	29	.....	French.....	.....	.....	10.02	15.94	10.54	66.11	John Gulie.....	Grand June...	"
104	6	40—24	31	.....	"	.....	.....	9.42	15.71	9.92	63.13	"	"	"
105	10	17—8	12	.....	German.....	.....	.....	10.62	16.40	11.16	68.04	Jas. Underwood.	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	9.73	.....	.....	69.87	.....	.....	.....

* Four beets sent by J. M. Allison, and one each by Elias Pinch, Michael Biehl, J. S. Smead, T. Callahan, B. F. Moore and M. Burds.

† Assumed.

‡ Samples 79 to 86, inclusive, were M. Simon's first lot, harvested about 15 days earlier than the rest of his samples.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.			Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
	Largest and small- est. Ounces.	Mean. Ounces.					Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza- tion). Per cent.	Purity Coefficient.			
106	7 22—16 18		....	German	April 20	Oct. 19			9.58	15.01	10.08	67.13	R. D. Lrnton.	Boonsboro	Boone.
107	5 37—13 23		....	" .....	" .....	" .....			10.57	15.76	11.12	70.75	Tom. L. Jones.	Ontario	Story.
108	4 26—12 16½	12	....	Vilmorin	May 26	"			13.72	18.70	14.44	77.23	Eugene Wood..	Marshalltown..	Marshall.
109	2 35—17 26	12	....	" .....	" 26	Oct. 23			12.75	17.31	13.42	77.54	"	"	"
110	6 19—8 13		....	" .....	" .....	" .....			10.99	15.48	11.57	74.73	E. N. Chapin..	"	"
111	2 16—14 15		....	" .....	" .....	" .....			12.76	18.55	13.43	72.41	A. T. Birchard.	"	"
112	2 20—18 19		....	" .....	" .....	" .....			11.49	16.98	12.09	71.21	"	"	"
113	2 12—10 11		....	" .....	" .....	" .....			13.14	19.23	13.83	71.94	"	"	"
114	2 18—14 16		....	" .....	" .....	" .....			12.14	18.10	12.78	70.61	"	"	"
115	2 16—12 14		....	" .....	" .....	" .....			10.80	17.87	11.36	63.57	"	"	"
116	2 23—17 20		....	" .....	" .....	" .....			10.90	17.00	11.47	67.46	"	"	"
117	2 12—12 12		....	" .....	" .....	" .....			12.44	19.52	13.09	67.07	"	"	"
118	2 21—19 20		....	" .....	" .....	" .....			13.58	20.63	14.29	69.28	"	"	"
119	2 11—10 10½		....	" .....	" .....	" .....			14.78	18.84	15.56	82.63	"	"	"
120	2 11—9 10		....	" .....	" .....	" .....			14.86	21.08	15.64	74.22	"	"	"
121	2 16—14 15		....	" .....	" .....	" .....			13.76	19.49	14.48	74.31	"	"	"
122	2 10—9 9½		....	" .....	" .....	" .....			15.30	21.93	16.10	73.44	"	"	"
123	2 13—12 12½		....	" .....	" .....	" .....			13.80	19.26	14.52	75.42	"	"	"
124	2 12—9 10½		....	" .....	" .....	" .....			15.22	21.05	16.02	76.14	"	"	"

125	2 14—13 13½								14.21	19.71	14.96	75.93	A. T. Birchard.	Marshalltown	Marshall.
126	2 16—15 15½								14.56	21.90	15.33	70.03	"	"	"
127	2 24—18 21								10.53	16.97	11.08	65.93	N. Kirk.....	Bangor	"
Mean.									13.09			72.55			
128	6 42—9 25½	23	Klein-Wanzl.....		Oct.	13	7.54	11.62	7.93	68.27	W. C. Boggs ..	Vinton.....	Benton.		
129	5 63—17 36	20	Vilmorin.....		"	12	10.07	14.67	10.60	72.24	S. T. Shorter..	"	"		
130	6 52—13 30	21	"		"	10	8.57	14.67	9.02	62.95	S. M. Edwards	"	"		
131	6 92—18 39	25		May	1	20	9.32	15.48	9.81	63.36	Nick Dilcher..	Garrison.....	"		
132	2 43—29 36						9.72	16.02	10.23	63.80	J. B. Reeve...	"	"		
Mean.							9.04			66.12					
133	5 86—33 56	25	Klein-Wanzl.....	May	1	Sept. 22	9.65	14.95	10.16	67.93	David Wild...	Springville...	Linn.		
134	9 27—18 22½	25	"	"	1	" 22	10.07	14.95	10.60	70.88	"	"	"		
135	8 28—18 22	23	"	"	1	Oct. 12	10.14	15.80	10.67	67.51	"	"	"		
136	6 25—15 19		"	"	1	" 29	11.15	15.84	11.74	70.38	"	"	"		
137	10 55—27 39½		French.....				10.30	15.80	10.83	68.53	Lefebure & Son	Fairfax.....	"		
138	7 30—12 24		"				9.96	15.80	10.48	66.31	Mr. McGregor.	"	"		
139	6 30—12 21						11.17	16.11	11.76	73.00	J. F. Burke...	Lisbon.....	"		
140	10 14—5 10						13.67	18.38	14.39	78.31	"	"	"		
Mean.							10.76			70.36					
141	2 52—44 48	21	Klein-Wanzl.....	May	16	Oct. 23	8.32	12.56	8.76	69.79	E. B. Irwin....	Irwin	Shelby.		
142	6 24—8 14½		Klein-Wanzl.....	May	8	Sept. 19	6.91	13.43	7.26	54.15	Jas. Sullivan..	Stuart	Guthrie.		
143	6 21—4 11½		"	"	8	Oct. 31		17.12	Lost.		"	"	"		
Mean.															
144	6 21—11 17	20	Vilm. (sheep manure).	June	1	Oct. 14	13.73	18.41	14.45	78.51	J. H. Conly...	Perry	Dallas,		
145	6 27—17 21	24	Vilmorin (on hog lot).	May	1	" 14	13.20	18.18	13.89	76.42	"	"	"		

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample	Weight of Beets after trimming.		Estimated yield of trimmed Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent	IN THE EX-PRESSED JUICE			GROWN BY	P O ADDRESS	COUNTY.
		Largest and small- est. Ounces.	Mean. Ounces.			Planting	Harvesting.		Solids (Brix) cent	Per Sugar (by polariza- tion.	Purity Coefficient.			
146	7 49—18 28	17		17	Klein Wanzl	May 1	Oct. 14	13.07	17.50	13.76	78.64	J. H. Conly . .	Perry	Dallas.
147	6 37—21 27	24		24	"	April 23	" 13	11.86	15.90	12.48	78.49	Asa Petty	"	"
148	6 27—18 21				"	May 14	" 14	10.67	15.44	11.23	72.72	F. M. Hain	"	"
149	6 17—8 11½				Vilmorin	" 3	" 14	12.46	17.69	13.11	74.12	Robt. Skinner . .	"	"
150	6 25—16 20	20		20	"	" 20	" 13	13.70	19.27	14.42	74.85	A. Thornburg . .	"	"
151	5 14—4 9¼	15		15	Klein Wanzl	" 10	" 14	11.18	17.90	11.77	65.75	John Troth	"	"
152	6 19—12 15				"	" 7	" 12	11.69	17.00	12.20	71.77	Sam Brewer . . .	"	"
153	6 28—12 18½	23		23	Vilmorin	June 1	" 16	14.18	18.86	14.93	79.16	S. Cooper	"	"
154	6 34—12 18½	17		17	Klein Wanzl	May 10	" 16	13.87	18.18	14.60	80.33	C. E. Duntap . . .	"	"
155	6 38—19 29	26		26	"	" 15	" 16	12.64	17.95	13.30	74.10	W. A. Ulum . . .	"	"
156	6 18—9 12	17		17	"	" 18	" 13	11.62	17.05	12.23	71.73	S. R. Emms	"	"
157	6 44—19 33	30+		30+	Klein Wanzl	June 1	" 15	12.54	18.18	13.20	72.61	J. R. Phillips . .	"	"
158	6 42—30 36	30+		30+	"	May 14	" 14	7.48	13.20	7.87	64.53	Swan Ingleson . .	"	"
159	6 34—12 22½	27		27	"	May 20	" 15	11.13	15.37	11.71	76.19	Geo. Roberts . . .	"	"
160	6 30—14 23	14		14	Vilmorin	" 15	" 16	9.98	15.22	10.50	68.96	J. A. Russell . . .	Woodward	"
161	6 23—16 20	14		14	Vilmorin	" 1	" 5	12.29	16.88	12.93	76.61	F. J. Jones	Perry	"
162	6 20—13 17	13		13	Klein-Wanzl	May 20	Oct. 9	12.19	17.33	12.83	74.04	Thos. Council . .	"	"
163	6 8—3 5	20		20	"	" 1	" 9	12.44	18.25	18.09	71.84	"	"	"
164	6 22—9 16	14		14	"	June 1	" 20	10.59	17.05	11.25	65.98	Harry Conly . . .	"	"
165	6 20—13 15	22		22	"	May 1	" 20	10.11	15.91	10.64	66.86	"	"	"
166	6 132—40 64	30		30	White Sugar	" 10	" 20	5.96	12.19	6.27	51.43	H C Griswold . .	"	"

167	6 50—21 34	26	Klein-Wanzl.....	May	1	Oct.	20	9.64	15.68	10 14	64.65	Rev. S. Jones..	Perry	Dallas.
168	6 29—12 22	16	Vilmorin	"	1	"	20	10.97	16.40	11.54	70.36	Harry Conly ..	"	"
169	5 28—11 18½	13	Klein-Wanzl.....	June	15	"	20	12.08	16 40	12 69	77.39	Wm Pepper...	"	"
170	6 31—20 24	29	"	May	25	"	20	12.77	17 31	13 44	77.66	Em'ry Stebbins	"	"
171	6	6	"	"	20	"	19	12.80	16.91	13 26	78.45	Frank Warren.	"	"
172	3 50—28 40	30+	"	"	15	"	20	9.87	16 91	10.39	81.42	L. Willis	"	"
173	6 27—15 20	25	"	"	15	"	19	10.36	15 07	10.90	72.32	A. D. Coffee ..	"	"
174	6 20—10 14	23	"	"	20	"	18	12.24	17 13	12 88	73.49	Wm. Bellmore	"	"
175	6 25—16 21	28	Vilmorin	"	15	"	18	11.81	16.40	12.43	75.80	Truman Buck.	"	"
176	6 76—52 64	25	.....	"	15	"	19	11.15	15 76	11 73	74.42	Wm Fahey...	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.57	.....	.....	72.78	.....	.....	.....
177	6 26—10 18½	24	Vilmorin	April	24	Oct.	17	10.90	16.28	11.47	70.45	R. Fullerton ..	Des Moines...	Polk.
178	6 39—14 26	30	Klein-Wanzl.....	"	24	"	17	11.55	17.42	12.15	69.75	"	"	"
179	6 33—8 14	15	Diamond	May	5	"	15	11.48	15.88	12.07	76.01	Paul Fisher...	Levey	"
180	7 17—6 12	15	Klein-Wanzl.....	"	5	"	15	13.08	17.48	13.77	78.79	"	"	"
181	7 23—4 15	12	White French ..	"	5	"	15	11.00	15.64	11.58	74.03	"	"	"
182	7 24—5 14	25	Lane's Imperial..	"	5	"	15	9.36	12.85	9.85	76.63	"	"	"
183	7 26—4 12½	12	Best German	"	5	"	15	10.95	14.77	11.52	78.00	"	"	"
184	8 16—3 9	6	Vilmorin	"	5	"	15	12.20	17.08	12.84	75.18	"	"	"
185	6 14—4 8	20	"	"	9	"	16	11.80	16.62	12.42	74.73	Mrs. J. A. Woods..	Des Moines...	"
186	6 22—14 20	26	"	"	26	"	9	12.10	16.88	12.80	75.84	W. H. Morgan	Des Moines...	"
187	6 52—27 42	23	Lane's Imperial..	"	15	"	20	8.47	12.91	8.91	69.05	C. W. Wilcox.	Commerce	"
188	6 30—30 33	20	Vilmorin	"	15	"	20	10.54	14.94	11.09	74.22	"	"	"
189	2 17—14 15½	9	German	"	2	"	19	.....	16.32	Lost.	.....	ODFarnsworth	Clive	"
190	2 24—11 17½	10	Vilmorin	"	2	"	19	10.47	16.32	11.02	67.50	"	"	"
191	2 50—40 45	22	Diamond	"	23	"	19	10.78	14.94	11.34	75.90	"	"	"
192	2 53—33 43	.....	Diamond	"	28	"	23	12.06	18.39	12.69	69.01	Jos Askew...	Ashawwa	"
193	2 38—31 34½	.....	Lane's Imp.	"	28	"	23	11.86	17.25	12.48	72.35	"	"	"
194	2 44—41 42½	.....	White French ..	"	2	"	23	11.59	17.03	12.20	71.64	"	"	"
195	2 33—31 32	.....	Vilmorin	"	28	"	23	13.71	19.29	14.43	74.82	"	"	"
197	2 57—44 50½	.....	Best German	"	28	"	23	11.72	18.62	12.33	66.22	"	"	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.35	.....	.....	73.17	.....	.....	.....

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.	Weight of Beets after trimming.		Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
		Largest and small-est. Ounces.	Mean. Ounces.			Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza-tion. Per cent.	Purity coefficient.			
198	531—19	24	29	German	May 20	Oct. 22	9.78	14.67	10.29	70.13	Mrs. Jno. Ryan	Prairie City	Jasper	
199	635—22	29	30+	"	"	"	22	16.00	Lost.	"	Chas. Walker.	"	"	
200	640—19	28	30+	"	"	"	22	12.24	16.91	12.88	A. Prentice	"	"	
201	637—21	30	30+	"	"	"	16	12.60	18.82	13.26	A. F. Wilson	"	"	
202	643—28	37	30+	"	"	"	22	12.07	17.68	12.70	W. K. Blain	"	"	
203	638—15	25	28	"	June 1	"	22	10.42	15.95	10.96	87.14	R. Charles	"	"
204	628—11	19	30	"	May 15	"	22	12.80	15.95	13.57	85.09	H. J. Sheaver	"	"
205	640—22	31	30+	"	"	"	22	9.53	15.22	10.03	65.88	S. Johnson	"	"
206	664—36	43	19	"	"	"	22	10.72	15.76	11.28	71.57	I. Bruner	"	"
207	623—9	17	21	"	"	"	13	10.62	17.13	11.18	65.20	J. Timmons Sr.	"	"
208	672—38	53	20	"	"	"	19	9.08	14.61	9.55	65.34	A. J. Wiggins	"	"
209	664—25	46	30+	"	"	"	22	10.14	15.45	10.67	69.04	Mrs W. Wagner	Fairmount	"
210	628—18	23	30	"	"	"	24	10.57	15.99	11.12	69.54	J. Smith	Prairie City	"
211	624—10	18	22	"	"	"	26	10.11	16.05	10.64	66.28	S. D. Butters	"	"
212	634—18	24	23	"	June 1	"	26	10.69	16.97	11.25	66.28	"	"	"
Mean.								10.82			69.27			
213	653—29	41	30+	French	May 9	Oct. 16	11.09	16.40	11.67	71.16	E. W. Hubbard	Norwalk	Warren.*	
214	649—20	30	20	Diamond	" 10	" 15	10.69	16.32	11.24	68.86	L. A. Stevenson	Indianola	"	
								10.89			69.51			

215	652—1936	27	.....	May 15	Oct. 17	9.48	15.58	9.98	64.05	G. Roorda....	Pella.....	Marion.*
216	674—1938	23	.....	" 15	" 17	9.33	14.66	9.82	66.96	P. J. Koelman.	".....	"
217	641—1529	28	Klein Wanzl	" 24	" 22	10.42	14.83	10.96	73.89	J. E. Visser...	".....	"
218	623—1117	26	"	" 23	" 22	13.82	19.04	14.54	76.39	Wm. Visser...	".....	"
219	640—2430	30+	"	" 16	" 22	12.52	18.59	13.18	70.91	Jno. Visser...	".....	"
220	634—2128					14.41	20.26	15.17	74.90	G. Van der Meide	".....	"
221	660—3951		German.....	June 12	" 19	12.19	18.02	12.83	71.21	A. De Penning	".....	"
222	676—3658	28	Vilmorin.....	April 20	" 24	10.23	16.23	10.77	67.89	T. Ver Beek..	".....	"
223	572—6067		.....			8.69	14.61	9.15	65.37	L. Nells.....	".....	"
224	645—2233		.....			8.62	16.07	9.07	56.47	G. Coum.....	".....	"
225	658—3949	30+	German.....	June 10	" 27	12.01	16.98	12.64	74.44	B. Goemaat...	".....	"
226	684—3247½		.....			10.89	16.76	11.46	68.39	I. Van Niewaal	".....	"
227	664—3245½		.....			9.05	14.92	9.52	63.78	T. Van Niewaal	".....	"
228	676—4452	30+	.....		" 17	6.45	12.65	6.79	53.69	E. Ver Ploegh.	".....	"
229	640—2228		.....	May 24	" 15	10.22	16.14	10.75	66.59	W. A. Chord..	".....	"
230	637—1926	21	.....	" 30	" 20	11.02	17.73	11.59	65.37	M. Verros....	".....	"
231	657—1933	20	Vilmorin.....	" 16	" 15	9.20	15.68	9.69	61.71	T. Verros....	".....	"
232	650—2838	28	German.....	" 20	" 24	8.50	15.13	8.94	59.12	R. Johnson....	Percy.....	"
233	626—1220	22	"	" 15	" 27	8.83	14.89	9.29	62.42	Jno. E. Roorda	Durham.....	"
234	656—2040	30+	"	" 15	Nov. 4	11.96	18.36	12.59	68.57	K. Verhey....	Pella.....	"
235	645—1931		Best German	" 10	" 4	12.49	18.81	13.15	68.32	C. Kooljman...	".....	"
136	653—3340		German.....	" 8	" 4	11.59	18.13	12.20	67.29	H. Von Well..	".....	"
237	663—3957		Best German	" 11	" 5	10.33	17.25	10.87	63.00	M. Van Goop..	".....	"
238	652—3238		German.....	June 15	" 8	10.66	17.03	11.22	65.88	G. Van Der Veen	".....	"
Mean.						10.54			66.53			
239	619—913½		.....			12.29	17.99	12.94	71.94	J. J. Sloan....	Brooklyn.....	Poweshiek.
240	638—2330		.....			11.48	16.40	12.08	73.66	"	"	"
Mean.						11.89			72.80			
241	1.....40		Champion.....			9.33	13.55	9.82	72.45	G. W. Barclay	Rochester.....	Cedar.
242	324—1820½	20	Vilmorin's Imp...	April 5	Oct. 5	11.18	15.20	11.77	77.43	"	"	"

* Warren and Marion counties are placed here, out of their order by tiers, to bring all the Commercial Exchange (Des Moines) beets together—Nos. 144 to 238 inclusive.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.	Weight of Beets after trimming.		Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P O ADDRESS.	COUNTY
		Largest and small- est. Ounces.	Mean. Ounces.			Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza- tion) Per cent.	Purity coefficient.			
243	3	26—15	21½	20	Klein-Wanzl	April 5	Oct. 5	12.51	16.10	13.17	81.82	G. W. Barclay	Rochester.....	Cedar.
244	4	38—21	26	20	"	" 5	" 5	12.96	17.69	13.64	77.12	"	"	"
Mean.	...	...	...	...	...	...	...	11.50	...	...	77.21	...	...	...
245	2	34—24	29	30+	Desprez	May 28	Oct. 6	15.31	20.50	16.11	78.57	Wm. Kose	Davenport	Scott.
246	2	85—16	50½	18	"	" 15	" 11	9.71	14.00	10.22	72.98	J. R. Porter...	Blue Grass	"
247	2	15—14	14½	...	"	" 20	" 24	13.43	18.78	14.14	75.31	B. H. Lage...	Davenport	"
248	2	35—18	26½	...	"	" 28	" 24	10.20	17.19	10.72	62.40	W. Steinhoff ..	"	"
249	2	40—31	35½	22	"	April 15	" 20	16.33	21.73	17.19	79.10	Joachime Qualtzow.	"	"
250	2	27—22	24½	19	Vilmorin	May 11	" 25	12.45	19.35	13.10	67.71	J. B. Kehoe...	Long Grove....	"
251	2	...	...	22	"	" 26	" 26	16.82	24.22	17.49	72.21	J. E. McConnell	Le Claire.....	"
Mean.	...	...	...	...	...	...	...	13.44	...	...	72.61	...	...	...
252	6	23—5	14	22	Klein Wanzl	May 1	Oct. 5	12.26	16.08	12.90	80.23	W. H. Hoopes & Son	Muscatine	Muscatine.
253	6	24—10	15½	22	Vilmorin No 1*	" 1	" 5	12.21	17.00	12.85	75.59	"	"	"
254	6	21—11	15	22	Vilmorin No. II*	" 1	" 5	11.91	16.32	12.58	76.78	"	"	"
255	6	42—20	29½	...	Klein Wanzl	" 15	" 5	8.32	13.06	8.76	67.11	L. Hoopes....	"	"
256	6	23—13	19	...	Vilmorin No I... ..	" 7	" 5	12.58	15.85	13.24	83.55	G. W. Billings.	"	"
257	6	24—13	18	...	Klein Wanzl	" 20	" 5	10.88	14.23	11.45	80.46	C. Kleist.....	"	"

*Vilmorin I and Vilmorin II indicate different lots of Vilmorin seed.

258	6 34—12 24	....	"	.....	May	24	Oct.	5	11.44	16.32	12.04	73.77	H. Nicholson..	Muscatine	....	Muscatine.
259	6 32—9 23	....	Vilmorin No. I...	....	"	15	"	5	13.26	18.15	13.96	76.76	G. S. Bird....	"	....	"
260	6 30—20 24½	....	Klein Wanzl.....	....	"	1	"	5	11.89	15.23	11.88	78.00	M. D. Manlove	"	....	"
261	6 27—13 18½	....	"	....	"	20	"	5	10.51	14.77	11.06	74.87	J. A. Eaton...	"	....	"
262	6 34—18 24	17	Vilmorin No. I...	....	"	16	"	5	12.05	17.08	12.68	74.24	H. B. Breckenridge	"	....	"
263	6 27—17 13	....	"	....	"	....	"	5	12.42	15.40	13.07	84.88	Elisha Beatty.	"	....	"
264	6 25—20 22	....	Vilmorin No. II..	....	"	12	"	5	10.25	13.77	10.78	78.33	S. B. Landis..	"	....	"
265	6 28—16 22½	....	Klein Wanzl.....	....	"	12	"	3	13.34	18.15	14.04	77.38	J. H. Hubacher	"	....	"
266	7 25—10 17	....	Vilmorin No. I...	....	"	....	"	5	13.94	19.27	14.67	76.17	J. W. Hoopes.	"	....	"
267	6 21—14 18	....	"	....	April	29	"	5	14.01	18.37	14.74	80.26	J. Wackerlin..	"	....	"
268	6 39—29 35	....	Vilmorin No. II..	May	15	"	"	5	9.82	13.76	10.32	74.97	H. R. Small...	"	....	"
269	6 35—31 33	....	Vilmorin No. I...	"	3	"	"	5	13.53	18.30	14.24	77.84	W. J. Barger...	"	....	"
270	6 32—12 19	....	Klein Wanzl.....	"	18	"	"	5	10.63	15.79	11.19	70.86	R. McCampbell	"	....	"
271	6 24—8 15	....	Vilmorin No. II..	"	11	"	"	5	14.46	19.65	15.22	77.48	Milton Rice...	"	....	"
272	5 33—9 14	....	Vilmorin No. I...	"	20	"	"	5	12.52	16.47	13.18	80.03	A. Klenduph..	"	....	"
273	6 18—8 11	....	Klein Wanzl.....	June	1	"	"	5	12.88	17.69	13.56	76.87	W. McGregor.	"	....	"
274	6 26—15 19	....	Vilmorin No. I...	May	6	"	"	5	9.66	15.32	10.17	66.36	E Barnhardt..	"	....	"
275	6 23—18 20½	....	Vilmorin No. II..	"	1	"	"	5	9.54	13.82	10.04	72.82	John Barnard.	"	....	"
276	6 30—10 21	....	Klein Wanzl.....	"	21	"	"	7	9.68	16.14	10.17	63.00	S. Humphreys.	"	....	"
277	6 26—11 17	....	Vilmorin No. I...	"	33	"	"	5	15.60	20.64	16 42	79.59	H. Neimeier..	"	....	"
278	6 40—22 29½	....	Vilmorin No. II..	"	1	"	"	5	13.04	18.63	13.72	73.48	C. L. eiendecker	"	....	"
279	6 30—21 27	....	Klein Wanzl.....	"	15	"	"	5	12.04	15.92	12.67	79.59	John Starke...	"	....	"
280	6 19—11 15½	....	Vilmorin No. I...	"	15	"	"	5	11.37	15.71	11 97	76.20	W. D. Page...	"	....	"
281	6 34—16 25	....	"	"	5	"	"	5	11.37	15.94	11.97	75.15	S. G. Stein...	"	....	"
282	6 24—13 17½	....	Klein Wanzl.....	"	11	"	"	5	11.54	17.10	12.15	71.06	G. Mittman...	"	....	"
283	6 27—12 19	....	Vilmorin No. I...	"	11	"	"	5	13.06	18.22	13.74	75.42	Robt. Mittman	"	....	"
284	6 36—14 19	....	"	"	6	"	"	5	12.78	16.90	13.45	79.60	Niles Sherfey.	"	....	"
285	6 16—5 9	....	Vilmorin No. II..	"	12	"	"	5	12.66	17.13	13 32	77.77	J. Pyeatt.....	"	....	"
286	6 28—12 19	....	Klein Wanzl.....	"	28	"	"	6	11.82	16.22	12.44	76.70	G. F. Funck...	"	....	"
287	6 30—18 22	....	Vilmorin No. I...	"	20	"	"	5	11.87	16.90	12.49	73.91	S. G. Stein...	"	....	"
288	6 30—13 20½	....	"	"	7	"	"	6	11.94	16.90	12.57	74.38	Phil Murphy..	"	....	"
289	6 30—12 20	....	"	"	1	"	"	6	12.75	16 90	13.42	79.42	W. Happer...	"	....	"
290	6 28—17 22	....	Klein Wanzl.....	"	8	"	"	5	13.01	17.13	13.69	79.93	Geo. Weiman..	"	....	"
291	6 46—20 31	....	Vilmorin No. I...	"	6	"	"	6	12.69	18.03	13.36	74.11	G. J. Freers...	"	....	"
292	6 22—10 15	....	Klein Wanzl.....	"	5	"	"	6	13.07	17.25	13 75	79.73	C. Graff.....	"	....	"
293	6 27—18 22	....	Vilmorin No. I...	"	5	"	"	6	11.72	15.88	12 33	77.80	Hahn Bros. & Co	"	....	"

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
	Largest and small-est.	Ounces.				Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza-tion). Per cent.	Purity Coefficient.			
294	6 41	15 23 1/2	...	...	Vilmorin No. 11..	May 15	Oct. 6	12.01	17.25	12.64	73.28	H. Bailey....	Adams	Muscatine.
295	6 34	11 19	...	...	Vilmorin No. 1...	" 15	" 6	12.64	16.34	13.30	81.40	Mrs. L. Koll..	Muscatine	"
296	7 20	8 14 1/2	...	...	Klein Wanzl.....	" 8	" 6	12.77	17.87	13.44	76.51	C. Kindler Sr.	"	"
297	6 34	16 24	...	...	" .....	" 18	" 5	12.03	17.42	12.66	72.68	S. T. Sennett.	"	"
298	6 23	12 16	...	...	Vilmorin No. 1...	" 25	" 6	10.29	15.12	10.83	70.09	J. E. Hoopes..	"	"
299	6 21	10 15	...	...	" .....	" 20	" 6	13.55	18.10	14 26	78.80	Jas. Adams...	Fruitland	"
300	7 19	7 12	...	...	" .....	" 3	" 6	12.68	16.51	13 34	80.81	Fred Daut....	Muscatine	"
301	6 19	11 16	...	...	Vilmorin No. 11..	" 15	" 6	11.74	15.82	12 36	78.13	Claus Koll....	"	"
302	6 27	12 19 1/2	...	...	" .....	" 6	" 6	10.93	15.12	11.50	76.06	B. F. Nichols.	Nichols Station	"
303	6 34	15 21 1/2	...	...	Vilmorin No. 1...	" 12	" 6	11.11	16.06	11 64	72.47	J. H. Cole....	Muscatine	"
304	6 32	14 21	...	...	" .....	" 5	" 7	9.85	13.73	10 37	75.33	Jas Briar....	"	"
305	6 21	14 18	...	...	" .....	" 10	" 7	10.49	14 89	11 04	74.13	Jas. Pemble..	Wapello	Louisa.
Mean	f or Lot	I, M	usca	tine Beets.	.....	.....	.....	11.96	.....	.....	76.07	.....	.....	.....
306	6 20	11 14 1/2	21	...	Vilmorin No. 11..	May 16	Oct. 15	10.99	16.45	11.56	70.27	Wm. Hoopes & Son.	Muscatine.	Muscatine.
307	6 17	9 13 1/2	21	...	Vilmorin No. 1...	" 16	" 15	13.42	18.49	14.12	76.39	"	"	"
308	6 35	11 20	21	...	Klein Wanzl.....	" 16	" 15	13.10	17.36	13.79	79.45	"	"	"
309	6 26	10 19 1/2	...	...	" .....	" 12	" 12	12.44	15.76	13.09	83.07	Wm Hoffman.	"	"
310	6 25	15 19 1/2	...	...	Vilmorin No. 1...	" 12	" 12	11.19	17.13	11.78	68.76	"	"	"
311	6 30	11 21 1/2	...	...	Vilmorin No. 11..	" 12	" 12	11.88	16.22	12.50	77.08	"	"	"

312	6 12— 8 10	20	Vilmorin No. I...	June 1	Oct. 15	12.90	17.13	13.58	79.29	W. McGregor.	Muscatine....	Muscatine.
313	6 26—11 21	21	"	May 10	" 15	12.88	16.45	13.55	82.39	Fred. Stamler.	"	"
314	7 27— 6 16	....	"	" 8	" 10	13.15	18.03	13.84	76.78	C. H. Stone...	"	"
315	12 37—15 23½	....	Klein Wanzlebener	" 11	" 14	12.44	15.99	13.09	81.88	G. & R. Mittman..	"	"
316	6 24—15 19	12	"	" 11	" 15	12.56	16.00*	13.22	82.62	Milton Rice...	"	"
317	6 38—26 31	30	"	" 8	" 14	13.18	17.48	13.87	79.36	Fred Mittman.	"	"
318	6 24— 6 15	....	"	" 20	" 15	10.18	15.85	10.71	87.55	Ed Barnhardt.	"	"
319	6 28—18 22	14	"	" 27	" 15	11.36	17.03	11.96	70.23	S. Van Zandt...	"	"
320	6 33— 8 22	....	"	" 1	" 15	9.14	14.95	9.62	64.32	"	"	"
321	7 3— 2 2½	18	"	" 14	" 14	12.03	17.48	12.66	72.43	J. A. Pyeatt.	"	"
322	6 15—12 13	16	Vilmorin No. II...	" 1	" 10	9.84	15.85	10.36	65.35	John Barnard.	"	"
323	6 30—17 21	....	Vilmorin No. I...	" 15	" 8	10.50	15.64	11.05	70.64	A. Strake....	"	"
324	6 29—19 25	....	Klein Wanzl.....	" 10	" 8	11.99	17.02	12.62	74.15	M. Schaab	"	"
325	6.....	....	Vilmorin No. I...	" 18	" 7	12.08	17.31	12.69	73.32	Wm. Albrecht.	"	"
326	6 40—20 31	....	Klein Wanzl.....	" 11	" 8	11.06	16.17	11.64	72.00	C. Camehl.....	"	"
327	6 36—21 26	....	Vilmorin No. I...	" 16	.....	10.18	15.48	10.71	69.18	W. L. Fischer.	"	"
328	6 37—23 29	....	"	" 31	Oct. 8	11.71	17.31	12.32	71.18	D. W. Roberts.	"	"
329	7 20— 9 18	21	"	" 7	" 14	13.63	17.39	14.33	82.42	M. D. Manlove	"	"
330	6 19—10 15	....	"	" 18	" 14	13.05	17.39	13.74	79.02	R. H. McCampbell..	"	"
331	6 26—11 18	....	"	" 20	" 14	12.54	18.07	13.20	73.06	T. J. Fowler...	Wrayville	"
332	6 22—16 18	....	"	" 18	" 7	12.22	16.70	12.86	77.02	Wm. Albrecht.	Muscatine	"
333	6 21—15 19	24	"	" 14	" 14	15.01	19.35	15.81	81.69	C. Kindler, Sr.	"	"
334	6 38—11 22	....	French	" 1	" 14	10.80	15.94	11.37	71.33	S. N. Grosjean	"	"
335	6 20— 9 14	21	Vilmorin No. II...	" 7	" 14	12.98	16.48	13.66	82.91	M. D. Manlove	"	"
336	6 35—12 17	21	Klein Wanzl.....	" 7	" 14	11.97	17.54	12.60	71.84	Phil Murphy...	"	"
337	6 34—18 21	19	Vilmorin No. I...	June 15	" 13	13.15	16.87	13.84	82.08	Jos. Lorber...	"	"
338	6 19—15 16½	26	Klein Wanzl.....	May 17	" 13	14.70	19.14	15.47	80.85	Henry Timm...	"	"
339	6 31—14 23½	18	Vilmorin No. I...	" 1	" 14	10.64	14.58	11.20	76.81	Asa Sheppard.	Fruitland.....	"
340	6 20—13 16½	20	Klein Wanzl.....	" 7	.....	12.70	15.96	13.36	83.72	T. H. Drake...	"	"
341	6 30— 9 17	20	Vilmorin No. I...	" 7	.....	13.19	16.91	13.89	82.16	"	"	"
342	6 22—11 17	20	Vilmorin No. II...	" 7	.....	13.86	17.48	14.59	83.49	"	"	"
343	6 40—19 30	..	Vilmorin No. I...	" 1	Oct. 14	11.66	15.52	12.27	79.06	Wm. Happer...	Muscatine....	"
344	6 25— 8 14	..	"	" 25	" 9	11.50	15.76	12.10	76.78	J. Leutzinger..	"	"
345	6 19—11 16	20	"	April 28	" 12	15.10	19.39	15.89	81.94	B. B. Rankin..	"	"

* Assumed.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample	Weight of Beets after trimming.		Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent	IN THE EX-PRESSED JUICE			GROWN BY	P O ADDRESS	COUNTY
		Largest and small- est. Ounces.	Mean. Ounces.			Planting	Harvesting.		Solids (Brix) cent	Sugar (by polariza- tion.	Purity Coefficient			
346	632—2729	...	...	...	Klein Wanzl	May 8	Oct. 20	13.62	18.26	14.34	78.55	J. Starke	Muscatine	Muscatine.
347	628—921	...	...	...	"	" 24	" 22	14.94	19.16	15.72	82.08	H. Niemeier	"	"
348	631—1624	14	...	...	Vilmorin No. I	" 20	" 15	13.47	18.49	14.62	79.09	Elisha Beatty	"	"
349	625—1520	18	...	...	Klein Wanzl	" 25	" 12	14.77	19.16	15.54	81.14	Jas. Cross	"	"
350	620—1114	20	...	...	"	" 7	" 14	15.84	19.61	16.67	85.00	Jas. Adams	Fruitland	"
351	624—1319	...	...	...	Vilmorin No. II	" 24	" 22	16.99	22.00*	17.88	81.28	H. Niemeier	Muscatine	"
352	624—917	...	...	...	Vilmorin No. I	April 30	" 16	14.66	19.39	15.43	79.61	G. H. Stiles	"	"
353	627—917	21	...	...	"	May 7	" 16	13.24	18.04	13.94	77.29	H. R. Smull	"	"
354	630—1424	30+	...	...	Vilmorin No II	" 15	" 17	13.57	18.49	14.28	77.25	W. H. Fayle	"	"
355	634—2026	29	...	...	Vilmorin No. I	" 6	" 16	11.65	17.24	12.26	71.11	Claus Lemp	"	"
356	625—1217	13	...	...	"	" 1	" 16	11.72	16.79	12.33	72.10	B. F. Nichols	Nichols Station	"
357	626—1721	30+	...	...	"	" 12	" 15	11.35	15.87	11.95	75.29	J. H. Cole	Muscatine	"
358	622—812	16	...	...	Vilmorin No. II	" 12	" 15	12.60	17.05	13.26	77.78	A. Kirchner	Sweetland	"
359	623—1619½	25	...	...	Vilmorin No. I	" 12	" 15	13.57	18.41	14.39	76.41	Fred. Daut	Muscatine	"
360	626—1619	...	...	...	"	" 20	" 15	12.09	17.19	12.72	73.82	S. Humphreys	"	"
361	623—1619	...	...	...	"	" 20	" 14	11.82	17.42	12.44	71.42	T. J. Fowler	Wrayville	"
362	629—1320	...	...	...	"	"	"	11.41	16.28	12.03	73.89	J. E. Hoopes	Muscatine	"
363	618—1013	7	...	...	Klein-Wanzl	" 12	" 15	11.82	16.14	12.44	77.08	S. B. Landis	"	"
364	623—1119	21	...	...	"	" 18	" 15	13.94	19.18	14.67	76.91	S. Sennett	"	"
365	664—725	20	...	...	"	" 7	" 15	11.28	15.15	11.87	78.45	Niles Sherfey	"	"
366	642—1927	19	...	...	Vilmorin No. I	" 19	" 17	15.62	19.61	16.44	83.82	Wm. Fuhlman	Illinois City	State of Illinois.

367	6 26—16	20	....	Klein-Wanzl.....	May 16	.....	12.91	18.14	13.59	74.93	W. L. Fischer.	Muscatine	Muscatine.
Mean	..	for Lot II,	Mus	catine Beets.....	.....	.....	12.29	.....	.....	76.65	.....	.....	.....
368	5 33—16	23	20	Vilmorin No. II..	" 10	Oct. 28	13.31	18.46	14.01	75.92	Asa Sheppard.	Fruitland	Muscatine.
369	6 14—7	10	9	"	" 1	" 28	15.22	19.36	16.02	82.73	M. D. Manlove.	Muscatine	"
370	5 17—11	15	16	"	" 12	" 28	15.26	20.38	16.06	78.79	C. B. Vail....	"	"
371	8 21—5	13½	14	Klein-Wanzl.....	" 12	" 29	14.85	19.93	15.63	78.45	J. H. Cole....	"	"
372	6 26—16	21	18	Vilmorin No. I...	" 8	" 28	15.40	19.23	16.21	84.28	Jas. Adams...	Fruitland	"
373	6 31—19	25½	26	"	" 20	" 28	12.92	16.97	13.60	80.15	G. W. Mentink	Muscatine	"
374	6 24—12	18	17	Vilmorin No. II..	" 8	" 29	12.09	16.91	12.72	75.22	S. G. Stein....	"	"
375	6 18—10	15	.....	Vilmorin No. I...	.....	" 29	13.55	18.03	14.26	79.11	Wm. Happer..	"	"
376	6 28—20	24½	17	"	" 1	" 29	13.52	18.71	14.23	76.08	Geo. Ewing...	"	"
377	6 21—14	17	19	"	" 15	" 29	15.63	19.83	16.45	82.94	Elisha Beatty..	"	"
378	6 23—16	18	24	Vilmorin No. II..	" 1	" 28	15.15	20.38	15.95	78.25	Wm. Happer..	"	"
379	6 40—18	25	22	Vilmorin No. I...	April 27	" 24	15.92	20.38	16.76	82.23	B. B. Rankin..	"	"
380	6 30—19	22	20	"	May 1	" 27	15.09	20.16	15.88	78.75	Jas. Cross....	"	"
381	6 23—20	21	17	Klein Wanzl.....	" 1	" 29	13.62	18.59	14.34	77.16	Geo. Ewing...	"	"
382	6 12—7	10	8	Vilmorin No. I...	" 4	" 28	15.98	20.24	16.82	83.10	T. H. Drake...	Fruitland	"
383	7 15—11	12½	7	Vilmorin No. II..	" 10	" 28	16.12	21.79	16.97	77.87	Milton Rice...	Muscatine	"
384	6 20—11	16	22	"	April 24	" 24	16.53	21.57	17.40	80.66	B. B. Rankin..	"	"
385	6 16—10	13	18	Klein-Wanzl.....	May 4	" 28	15.64	19.57	16.46	84.10	T. H. Drake...	Fruitland	"
386	6 29—16	20½	18	Vilmorin No. II..	" 4	" 28	15.44	19.23	16.24	84.44	"	"	"
387	6 16—11	14	13	Vilmorin No. I...	" 11	" 28	16.08	19.68	16.93	86.03	Geo. Mittman	Muscatine	"
388	6 41—21	30	22	Klein-Wanzl.....	April 28	" 24	14.68	19.68	15.45	78.54	B. B. Rankin..	"	"
389	6 17—10	14	15	Vilmorin No. I...	May 8	" 29	13.70	18.78	14.42	76.81	S. G. Stein....	"	"
390	6 32—11	21	19	Gov. Seed.....	" 18	" 30	12.60	17.00	13.26	78.01	R. H. McCampbell..	"	"
391	6 28—16	21½	20	Vilmorin No. II..	June 1	" 28	13.09	18.36	13.78	75.07	J. W. Hoopes.	"	"
392	6 41—16	28	25	Vilmorin No. I...	May 11	" 28	13.55	17.91	14.26	79.64	G. and R. Mittman.	"	"
393	6 37—14	23	29	"	" 11	" 28	15.59	20.60	16.41	79.64	W. H. Fayle..	"	"
394	6 32—21	27½	17	"	May 24	" 28	13.99	19.20	14.72	76.69	H. Niemeier...	"	"
395	6 33—15	24½	19	Vilmorin No. II..	May 18	" 30	13.62	18.30	14.36	78.49	R. H. McCampbell.	"	"
396	6 14—10	12	.....	Klein-Wanzl.....	.....	" 24	.....	17.39	.....	.....	J. A. and L. Hoopes	"	"
397	6 30—12	22½	9	Vilmorin No. I...	June 1	" 28	15.81	20.99	16.64	79.26	John Starke...	"	"

* Assumed.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.	Weight of Beets after trimming.		Estimated yield of trim'd Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
		Largest and small- est. Ounces.	Mean. Ounces.			Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza- tion). Per cent.	Purity coefficient.			
398	548-2641	19			Lane's Improved..	May 18	Oct. 30	11.38	15.79	11.98	75.70	R. H. McCampbell..	Muscatine....	Muscatine.
399	616-1214	7			Vilmorin No. 1...	" 10	" 28	13.86	19.65	14.59	74.27	Milton Rice...	"	"
400	620-1517	13			Vilmorin No. II..	" 1	" 28	11.48	16.71	12.08	72.29	J. Barnard ...	"	"
401	67-56	5			Klein-Wanzl.....	June 1	" 28	13.46	18.53	14.17	76.49	W. W. Gregor.	"	"
402	619-811	7			Vilmorin No. 1...	May 15	" 29	14.42	18.45	15.18	82.31	B. F. Nichols..	Nichols Station	"
403	626-1620	17			"	" 18	" 28	12.92	17.31	13.60	78.58	Wm. Albrecht.	Muscatine	"
404	634-2327	24			Klein-Wanzl.....	" 20	" 29	10.86	16.63	11.43	68.72	S. Humphreys.	"	"
405	625-1419	19			Vilmorin No. 1...	" 1	" 28	15.29	20.25	16.09	79.44	M. M. Heinley (B)	Fairport	"
406	613-710	11			"	" 30	" 29	15.52	20.16	16.33	81.23	Levi S. Moss..	Muscatine.....	"
407	626-2119	18			"	" 12	" 29	15.17	19.43	15.97	82.18	H. V. Howard.	"	"
408	524-1821	22			"	" 10	" 30	13.62	18.30	14.34	78.38	Eli Selman....	"	"
409	723-1217	17			"	" 1	" 28	15.61	20.55	16.43	79.94	M. M. Heinley (A)	Fairport	"
410	615-58	11			Vilmorin No. II..	" 30	" 29	14.37	19.66	15.12	76.94	Levi S. Moss..	Muscatine.....	"
411	623-1119	7			"	" 10	" 28	14.14	19.22	14.88	77.45	Hahn Bros. & Co	"	"
412	613-811	7			Vilmorin No. 1...	" 12	" 28	14.96	19.66	15.75	80.09	S. B. Landis..	"	"
413	713-610	11			Klein-Wanzl.....	" 30	" 29	14.91	20.55	15.69	76.34	Levi S. Moss..	"	"
414	630-1519 1/2	20			"	" 15	.....	13.50	17.77	14.21	80.00	J. B. Lindle..	"	"
415	629-1823 1/2	20			French	" 15	.....	15.22	19.58	16.02	81.81	"	"	"
416	441-1625	20			"	" 15	.....	14.06	18.68	14.80	79.25	"	"	"
417	430-916	20			Vilmorin No. I...	" 15	.....	14.38	18.62	15.13	81.29	"	"	"
418	624-1218	20			Vilmorin No. II..	" 15	.....	14.12	18.62	14.86	79.83	"	"	"

419	6 19—15 17½	16	Vilmorin No. II..	May	7	Oct.	29	15.22	19.35	16.02	82.78	Phil Murphy..	Muscatine.....	Muscatine.
420	6 24—10 16	11	Vilmorin No. I...	"	14	"	29	14.96	19.52	15.75	80.87	C. H. Stone...	"	"
421	6 22—13 17	10	Klein-Wanzl.....	"	18	"	30	18.00	23.71	18.95	79.93	S. T. Sennett..	"	"
422	6 45—18 30	14	Vilmorin No. I...	June	1	Nov.	2	12.92	17.42	13.60	78.09	Jas. Briar.....	"	"
423	6 23—10 14½	14	Vilmorin No. II..	May	1	Oct.	29	15.23	20.80	16.03	77.05	Wm. Hoffman..	"	"
424	6 24—9 16	11	Vilmorin No. I...	"	15	"	26	13.64	19.01	14.36	75.56	H. Breckenridge	"	"
425	6 17—10 13	12	Klein-Wanzl.....	"	1	"	28	14.96	20.57	15.74	78.50	F. P. Hoopes...	"	"
426	7 30—18 27	24	Vilmorin No. II..	"	8	"	29	15.26	20.60	16.06	77.95	C. Kindler, Sr.	"	"
427	6 19—11 14½	14	Vilmorin No. I...	"	1	"	29	15.37	20.83	16.18	77.66	Wm. Hoffman..	"	"
428	6 12—8 10	11	Klein-Wanzl.....	Ap'l	28	"	28	16.79	21.93	17.67	80.57	C. S. Bird.....	"	"
429	6 23—13 18	19	Vilmorin No. II..	May	8	"	26	16.62	21.49	17.49	81.39	Geo. Weiman..	"	"
430	6 18—10 14	14	Klein-Wanzl.....	"	1	"	29	14.88	19.90	15.45	77.67	Wm. Hoffman..	"	"
431	6 17—9 14	21	Vilmorin No. I...	"	30	"	26	14.88	19.23	15.45	80.37	G. F. Funck...	"	"
432	6 12—6 8	10	"	"	6	"	27	16.77	21.79	17.65	81.00	Fred Daut....	"	"
433	6 20—14 16	19	"	"	8	"	26	18.70	23.97	19.68	82.12	Geo. Weiman..	"	"
434	6 10—5 7	14	Klein-Wanzl.....	"	3	"	29	16.90	22.46	17.79	79.20	W. H. Hoopes & Sons	"	"
435	6 8—3 6	14	Vilmorin No. II..	"	3	"	29	16.79	22.00	17.67	80.31	"	"	"
436	6 20—14 16½	14	Vilmorin No. I...	"	3	"	29	15.48	20.92	16.29	77.85	"	"	"
437	6 24—10 19	18	"	"	4	"	30	13.84	18.95	14.36	75.80	Claus Koll...	"	"
438	6 21—7 14	12	"	"	8	Nov.	2	13.91	19.39	14.64	75.53	G. H. Kirkpatrick	"	"
439	6 23—8 18	17	"	"	8	Oct.	29	14.41	19.61	15.17	77.39	G. Stein.....	"	"
440	6 22—15 23	18	Vilmorin No. II..	"	12	Nov.	6	13.37	18.72	14.07	75.18	C. Camehl.....	"	"
441	7 19—8 12	8	Vilmorin No. I...	"	11	Oct.	26	15.13	20.80	15.92	76.53	T. Middleton..	"	"
442	6 25—14 17	10	"	"	18	"	30	12.47	17.42	13.12	75.33	S. T. Sennett..	"	"
443	6 47—23 31	14	Vilmorin No. II..	June	1	Nov.	2	17.55	23.00	18.47	80.30	Jas. Briar.....	"	"
444	6 24—14 21	19	"	May	11	Oct.	28	13.98	17.65	14.71	83.37	Geo. Mittman..	"	"
445	6 24—11 17	17	Vilmorin No. I...	"	11	"	28	14.34	18.74	15.09	90.15	G. & R. Mittman	"	"
446	6 13—10 11	9	"	"	1	"	30	15.14	20.57	15.90	77.28	J. E. Hoopes & Co.	"	"
447	6 23—12 17	13	"	"	6	"	29	13.69	18.78	14.41	76.75	W. L. Fisher..	"	"
448	6 12—6 9	6	"	"	18	"	28	14.96	19.29	15.75	81.63	Hahn Bros. & Co	"	"
449	6 21—15 18½	15	Vilmorin No. II..	"	15	"	29	16.22	20.86	17.07	81.83	Wm. Bush.....	"	"
450	6 18—14 15½	19	Klein-Wanzl.....	"	7	"	30	15.68	19.29	16.51	85.59	G. W. Billings	"	"
451	7 9—7 8	9	Vilmorin No. I...	"	7	"	30	16.08	19.29	16.93	87.76	"	"	"
452	6 27—14 21½	19	Klein-Wanzl.....	"	15	"	29	10.77	15.88	11.34	71.41	C. Camehl.....	"	"
453	6 36—22 27	17	Vilmorin No. I...	"	16	"	28	14.75	20.41	15.52	76.07	C. Letendecker	"	"
454	6 12—7 9	9	Klein-Wanzl.....	"	1	"	30	15.14	20.19	15.93	78.88	J. E. Hoopes & Co.	"	"

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

Sample No.	Number of Beets in sample		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS RE- PORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX- PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
	Largest and small- est. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Solids (Brix). cent.	Sugar (by polariza- tion). Per cent.	Purity Coefficient.			
455	6 29—14 19	19	20	Vilmorin No. I...	April 27	Oct. 27	15.57	20.86	16.39	78.56	J. Wackerlin...	Muscatine	Muscatine.	
456	6 16—13 15	10	10	Klein-Wanzl.....	May 6	" 27	14.19	19.80	14.93	75.43	Fred. Daut....	"	"	
457	6 18—9 15	7	7	Vilmorin No. I...	" 10	" 26	14.02	21.13	14.76	69.88	R. T. Hummel	"	"	
458	6 19—13 16½	9	9	"	" 20	" 29	14.85	20.47	15.63	76.34	A. J. Nester ..	"	"	
459	6 31—15 20	23	23	Vilmorin No. II..	" 12	" 27	14.76	20.47	15.53	75.85	J. H. Cole.....	"	"	
460	6 16—14 15	10	10	"	" 6	" 27	13.89	18.90	14.62	77.38	Fred. Daut....	"	"	
461	6 20—11 15	11	11	Vilmorin No. I...	" 6	" 29	14.92	19.35	15.70	81.11	Niles Sherfey .	"	"	
462	6 30—17 24	8	8	Vilmorin No. II..	" 11	" 26	14.82	19.29	15.60	80.84	T. Middleton..	"	"	
463	6 25—9 15	19	19	"	June 10	" 26	14.29	19.80	15.04	76.00	Jas B. Pemble	Wapello	Louisa.	
464	6 29—20 24	18	18	Klein-Wanzl.....	" 15	" 24	13.35	19.26	14.05	72.97	Wm. McGill...	Grand View...	"	
Mean.	... for Lot 111.	Mus	Mus	catine Beets.....	.....	.....	14.64	.....	.....	78.84	.....	.....	.....
465	6 35—14 22	19	19	Vilmorin.....	May 7	Oct. 15	11.37	15.47	11.97	77.38	J. M Lehman.	Cumberland ..	Cass.	
466	6 54—19 35	17	17	Klein-Wanzl.....	" 8	" 15	9.62	14.31	10.12	70.70	"	"	"	
Mean.	.....	.....	.....	.....	.....	.....	10.50	.....	.....	74.04	.....	.....	.....
467	3 37—24 30	22	22	German.....	May 7	Oct. 12	12.25	16.86	12.89	76.46	W. H. Shoop..	Carlisle.....	Warren.	
468	3 19—16 17½	14	14	French.....	" 7	" 12	12.72	16.86	13.38	79.38	"	"	"	

469	3	35—20	28	20	German.....	May 20	Oct. 12	9.62	14.76	10.12	68.54	W. H. Shoop..	Carlisle.....	Warren.
Mean.	..	.....	.....	.....	.....	.....	.....	11.53	.....	.....	74.79	.....	.....	.....
470	1	.....	34	..	Klein-Wanzl.....	May 20	Oct. 4	7.65	12.38	8.05	65.00	A. W. Swalm..	Oskaloosa ...	Mahaska.
471	7	16—10	12½	11	.....	May 12	Nov. 10	14.02	18.16	14.76	81.31	Jno. Klein....	Keota.....	Keokuk.
472	6	32—6	20	11	.....	" 12	" 10	12.77	17.71	13.44	75.90	".....	".....	"
473	4	58—24	43	24	.....	" 1	Sept. 9	7.36	13.07	7.75	59.29	Jno. Morrison.	Hedrick.....	"
474	2	58—54	56	24	.....	" 1	" 9	4.87	12.50	5.13	41.04	".....	".....	"
475	6	80—42	71	24	Red Beets.....	" 1	" 9	4.84	10 10	5.09	50.39	".....	".....	"
476	6	44—24	33	24	.....	" 1	Oct. 16	9.33	13.90	9.82	70.62	".....	".....	"
Mean.	..	.....	.....	.....	.....	.....	.....	8.87	.....	.....	63.09	.....	.....	.....
477	6	15—10	12	26	Klein-Wanzl.....	May 1	Oct. 12	6.63	12.62	6.98	55.32	C. C. Platter..	Red Oak.....	Montgomery.
478	6	37—8	19½	26	".....	" 1	" 12	8.10	13.09	8.52	65.12	".....	".....	"
479	6	13—7	10	25	Vilmorin's Imp...	" 1	" 12	9.06	14.03	9.53	67.89	".....	".....	"
480	5	34—10	22	25	".....	" 1	" 12	8.51	13.09	8.96	68.48	".....	".....	"
481	6	16—8	11	27	".....	" 10	" 14	9.09	13.09	9.57	74.78	P. Erickson..	".....	"
482	6	48—7	24	27	".....	" 10	" 14	8.89	13.79	9.36	67.91	".....	".....	"
483	6	40—6	24	28	Klein-Wanzl.....	" 10	" 14	8.98	13.79	9.45	68.48	".....	".....	"
484	6	16—13	14½	28	".....	" 10	" 14	9.52	15.19	10.02	65.94	".....	".....	"
485	6	19—12	15	28	Vilmorin's Imp...	" 15	" 22	11.26	16.97	11.85	69.83	".....	".....	"
486	6	.....	21	.....	".....	" 12	" 26	11.69	16.54	12.30	74.23	E. M. Murphy.	".....	"
487	6	16—6	10½	.....	.....	.....	.....	10.09	15.01	10.62	70.74	M. M. Stoddard	Villisca.....	"
Mean.	..	.....	.....	.....	.....	.....	.....	9.26	.....	.....	68.97	.....	.....	.....
488	6	48—22	33½	23	Klein-Wanzl.....	April 27	Oct. 20	11.23	16.57	11.82	71.33	Jos. Beath....	Corning.....	Adams.
489	6	27—12	18	23	".....	" 27	" 20	12.17	17.48	12.81	73.29	".....	".....	"
490	10	14—4	9	26	".....	May 11	" 22	12.77	18.62	13.44	72.19	".....	".....	"
491	7	11—4	8	26	".....	" 11	" 22	13.04	18.14	13.73	75.71	".....	".....	"
492	6	58—14	34	.....	".....	" 11	" 22	11.76	17.68	12.38	70.03	".....	".....	"
Mean.	..	.....	.....	.....	.....	.....	.....	12.20	.....	.....	72.51	.....	.....	.....

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.			
493	2 22—18	20	...	...	...	...	...	10.88	16.11	11.45	71.07	J. C. Russell..	Creston.....	Union.
494	4 27—18	23	...	...	...	...	...	13.44	18.65	14.15	76.02	P. L. Harsh...	"	"
495	4 25—13	20	...	...	White French....	May 27	Sept. 30	13.49	18.84	14.20	75.39	Ezra Osborn...	"	"
496	4 30—19	24	...	...	...	...	...	11.30	17.03	11.89	69.82	J. B. Peterson	"	"
497	4 30—18	24	...	...	...	...	...	11.07	16.17	11.65	72.04	"	"	"
Mean.	...	...	...	...	...	...	...	12.04	...	...	72.87	...	...	...
498	10 68—28	50	...	...	...	...	...	9.28	14.00	9.77	69.77	S. A. Thomas.	Bingham	Page.
499	6 29—20	23	...	...	...	...	...	10.20	13.90	10.74	77.25	John Boyer ...	Braddyville...	"
Mean.	...	...	...	...	...	...	...	9.74	...	...	73.01	...	...	...
500	6 46—26	34½	30+	...	White.....	May 11	Sept. 16	12.06	16.45	12.57	76.40	J. W. Hills....	Slam	Taylor.
501	5 27—20	23	28	...	"	" 11	" 16	13.90	18.40	14.62	74.03	"	"	"
Mean.	...	...	...	...	...	...	...	12.98	...	...	74.88	...	...	...
502	6 66—49	60	...	...	...	...	...	7.51	14.22	7.90	55.58	E. Bevins....	Leon	Decatur.

In the foregoing table the results are arranged by counties, commencing with the northernmost tier and proceeding by tiers southward.

The exhibit plainly shows that in a season like that of 1891, beets of good quality for sugar production can be grown in certain parts of Iowa.

The average results for different counties show in some instances wide differences in quality of the beets. But wide differences are also found between the beets grown on different farms in the same county, and even between those from different plats or fields of the same farm. Some of these differences may be, probably are, due to the soil itself, but without doubt very many are due to the *modes of preparing the soil and cultivating the crop*. [Regarding these subjects see Bulletin 12]. Therefore it is not safe to assume that the relative adaptability of the different counties to the beet sugar industry is truly, or even approximately, represented by the results of a single year's investigation—and this is of course especially true of those counties from which but few samples were received.

It is true the results for the state *as a whole* do not indicate as high an average quality of beet as is reported from some states in the drier regions further west and northwest ; but on the other hand the average yield of beets per acre is in Iowa very much larger than is possible in those states, without irrigation. Therefore, even should this indication regarding quality be in future verified, (it is now *only* an indication), that difference would probably be more than balanced by the superior yield per acre possible with the soil and climate of Iowa. It is generally asserted, and doubtless with truth, that for profitable sugar manufacture there is required an average quality of beet represented by a sugar content of at least 12 per cent (on the beet) and a purity-coefficient of nearly 80, or upwards. But quality of beet is not all. Plainly, the *yield of beets per acre* is an equally important factor in determining profit.

(This report to be concluded in next bulletin).